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Case Report

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Non-small cell cancer of the lung metastasized to the central nervous system presenting with drop foot: a case report

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ABSTRACT

Drop foot usually presents as lumbar discopathy or peripheral nerve lesion. There may be many causes in the etiology of foot drop, which is rarely reported in upper motor nerve lesions. In this case report, a 59-year-old patient with lung cancer whose only symptom was drop foot was presented. In the patient's anamnesis, physical examination and imaging methods, we were guided by a central cause. As a result, it was concluded that although the etiology of foot drop is mostly due to peripheral lesions, central causes should not be ignored.

Keywords: Drop foot, brain metastasis, lung cancer

INTRODUCTION

Drop foot is severe weakness of ankle and big toe dorsiflexion. Drop foot is most commonly seen as a result of L4-5 radiculopathy or peroneal nerve entrapment at the head of the fibula.[1] Although it is usually seen in lesions of the peripheral nervous system, it has also been rarely reported in upper motor neuron lesions.[2] In this case report, we aimed to present a case with foot drop caused by non-small cell lung cancer with brain metastasis by reviewing the literature.

CASE

A 59-year-old male patient was admitted to our outpatient clinic with complaints of weakness in the right foot and difficulty in walking for a month. In the detailed anamnesis of the patient, who did not have a known systemic disease in his history, it was learned that he did not have low back pain, night sweats, weight loss and loss of appetite for about two months. There were no known features in her CV and family history. In the neuromuscular system examination of the patient with stepage gait, bilateral upper extremity, hip, knee and left ankle muscle strength were normal, right ankle dorsiflexion was 2/5, right toe extension was 2/5, right foot eversion was 2/5 muscle strength. Sensory examination was normal, deep tendon reflexes were hyperactive in the right lower extremity, and plantar response and clonus were positive in the right plantar reflex. In the electroneuromyography (ENMG) evaluation performed to explain the cause of foot drop of the patient whose hemogram, biochemistry, sedimentation and C-reactive protein values were normal; bilateral tibial-peroneal nerve amplitude and conduction velocities were within normal limits, and F response delay and thinning in the right tibialis anterior and gastrocnemus muscle were detected in the needle ENMG study. Lumbar, thoracic and cervical magnetic resonance imaging (MRI) did not reveal any additional pathology except mild degenerative changes. In the brain MRI examination of the patient who did not have a peripheral nervous system lesion, there was a mass lesion (metastasis) in the left posterior parietal region, in the paramedian midline, with a heterogeneous enhancement of 11*17*23 mm in size, with the effect of peripheral edema (**Figure 1**). The patient was transferred to the oncology department for further examination and treatment. In the examinations performed, a 48*41 mm mass lesion was detected in the vicinity of the segmental artery branch going to the lower lobe of the right lung in the thorax computed tomography (CT) examination of the patient. The biopsy result was compatible with non-small cell ca of the lung.

DISCUSSION

Drop foot is severe weakness of foot and ankle dorsiflexion. Tibialis anterior, extensor digitorum longus, extensor hallucis longus muscles provide dorsiflexion of the foot and ankle and are innervated from L4-L5-S1. These nerves are under control by the primary motor cortex (4th area of Broadma) located in the precentral gyrus. The primary motor cortex is the widest place on the dorsomedial surface of the hemisphere and continues as

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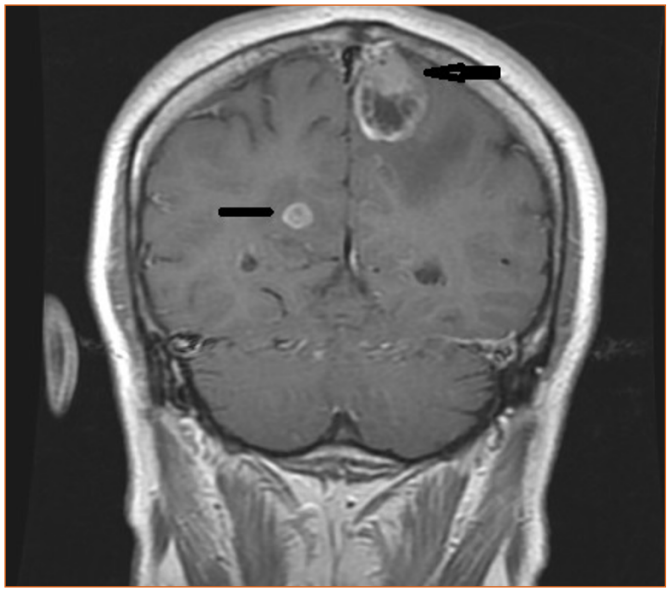

Figure 1: Paramedian midline metastatic lesion in the left posterior parietal region (brain MRI)

a thin band on the inferolateral surface of the precentral sulcus.[1-3] Although drop foot is usually seen as a result of L4-L5 disc herniation or fibular head peroneal nerve damage, it can also occur in upper motor neuron lesions.[4] Due to central causes, intensified upper motor neuron tracts, interhemispheric motor cortex homunculus area, corona radiata, internal capsule, cerebral peduncle, medulla and spinal cord pyramidal tract lesions are seen.[5,6] Upper motor neuron findings such as Babinski sign, hyperreflexia, and clonus in foot drop of central origin may accompany foot drop.[4] Baysefer et al.[7] reported a case of drop foot due to a parasagittal brain tumor. Eskandary et al.[8] reported that drop foot regressed after surgery in patients with parasagittal meningioma, brain abscess, astrocytoma, periventricular demyelinating plaque and depressed parietal fracture. In our case, weight loss, loss of appetite, night sweats in the patient's history, and Babinski's sign in the physical examination, vitality in deep tendon reflexes and clonus positivity directed us primarily to a central cause. The ENMG study and lumbar, thoracic and cervical MRI results supported our finding. The metastatic lesion detected in the brain MRI performed in our case who did not have peripheral pathology facilitated the diagnosis.

CONCLUSION

Although foot drop is usually seen as a result of L4-L5 disc herniation or fibular head peroneal nerve damage, it can also occur in upper motor neuron lesions. Detailed history, physical examination, ENMG and MRI methods taken from the patient are important methods to find the etiology of foot drop. Although the etiology of drop foot is mostly related to peripheral lesions, the causes of central origin should not be forgotten.

ETHICAL DECLARATIONS

Informed Consent: All patients signed the free and informed consent form.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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